

Department of Agriculture, Trade and Consumer Protection
Division of Marketing
Agricultural Development & Diversification Program (ADD)

2000 Grant Project Final Report

Contract Number: 14027

**A Homestead Goat Milk Cheese
Network:

Expanding Northern Wisconsin's
Potential
In the Specialty Cheese Market**

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Submitted by Sara T. Bredesen, September 1, 2000

Year 2 Project Summary

The original intent of the grant project was to be small scale and regional in nature and was designed to serve as a model for goat farmers to help them plan and develop a farmstead cheese plant and market regional products. The emphasis was on:

- Forming an alliance with other northern Wisconsin goat milk producers in seeking an outlet for their milk.
- Creating and marketing prototype farmstead goat cheeses.
- Designing, testing and sharing a method of marketing regionally produced goat milk cheeses.
- Publishing a document that will clearly outline the steps required in setting up a farmstead goat cheese facility.

The long-term benefit of this project to Wisconsin agriculture is to provide a market for commercially-produced goat milk in northern Wisconsin and for regionally-produced goat milk cheeses. There is a derivative effect for regional businesses through added sales of a unique product, and to suppliers of raw materials and packaging.

The short-term benefit is to provide other goat farmers with the information that will help them determine whether they want to start a cheese business, and the step-by-step procedure for getting it done without “reinventing the wheel.”

The project had six specific objectives, several of which were a continuation of objectives from Year 1:

1. Continue surveying northern Wisconsin goat milk producers to identify potential commercial milk supplies. **(Appendix A)**
2. To market regional cheeses based on market research and product development completed in Year 1.
3. To publish materials that will clearly outline the steps required in setting up a farmstead goat cheese business.

4. To develop an information network for dairy goat owners in the state.
5. To acquaint the public with goat dairying and its place in Wisconsin's diverse farm economy.
6. To acquaint the public and media with our regionally produced cheeses, and to create an awareness of what we hope will become a network of specialty goat cheese producers servicing northern Wisconsin.

Because of slow equipment delivery and the seasonality of goat milk production, the objectives of this project remained the same over the past year, but the timing shifted. As a result, there was much less time to test out the marketing plan than originally intended. Marketing and development of regional products will continue beyond the end-point of this grant.

Work Conducted

Year 1 of the project was directed at identifying the potential for goat milk supply, and Year 2 was directed at setting up a prototype cheese plant and support material for others who wanted to do the same. Grant funds in Year 2 were used to purchase cheese ingredients and other cheesehouse supplies, to pay for utilities for the cheesemaking process, to design and print labels, to travel to outreach programs, and to manage the grant over the many hours needed for phone calls, research, record-keeping, and public education.

The thrill of starting my own business is the greatest success achieved with this grant project, but that goal has always been based on the personal desire to bring the goat dairy industry in Wisconsin closer to its full potential. I have always promoted goats and goat milk products at every opportunity, often to the dismay of my family members who get dragged into "goat outings" on a regular basis. The challenges that were faced over the last year were not specific to the grant project, but rather, specific to starting a new business. There is never enough time to do all

the parts of the job that have to be done, and even less time for personal interests.

The concept of “time” plays heavily in the success or failure of a farmstead business, because most new farmstead businesses lack a financial “cushion” to allow for mistakes and setbacks. In December, my brand new boiler froze up, requiring \$3,000-worth of repairs and another \$1,000-worth of safeguards to prevent it from happening again. I was not only setback by the unplanned-for dollar expenditure, but had to wait several months before the repairs could be made. I also had an early spring abortion storm in the barn, resulting in my milk supply being reduced by nearly 25%, and my early freshening animals not able to make enough milk to get the cheesemaking started when I had originally planned. Funds from the grant project were the only thing that kept things together long enough for me to start production.

Once cheesemaking and marketing got going, it took off like a shot. In the six weeks ending August 1, an estimated 545 units were sold, with a net income of \$1,637. The product mix includes plain cheddar curd, garlic and dill flavored cheddar curd, plain chevre (spreadable, high-moisture cheese), dill chevre, and chive chevre. Feta and a cranberry chevre will be added yet this fall. If cheese had been produced for a full year, I estimate sales of 1200 to 1500 units with a gross income of about \$4,500.

Serendipity plays a part in new business start-ups as well. The local stainless steel fabricator has been slow in making my cheese press. The result is that I have had to market cheddar curds instead of wheels and wedges. For the tourists in our area, curds are a real hit. Quite by accident, I found a product with wide appeal and no competition.

Public Outreach

In Year 1 of the project, I published the pamphlet “Alternative Incomes With Dairy Goats.” In Year 2, I published a booklet entitled “Developing the Farmstead Goat Cheese Business in Wisconsin” (**Appendix B**). “Alternative Incomes...” was used as part of the information packet at the Farmstead Dairy Day and the Wisconsin Dairy Goat Association Caprine Field Day in November, 1999. The other

publication will be part of information packets used at a Farm Field Day at my farm in September, and a Caprine Field Day in October. The publications were also made available to those people who took part in the survey process.

The media were very interested in the grant project and provided coverage throughout the year. There were articles in the *Vilas County News-Review*, *Dairy Goat Journal*, *Country Today*, *Cheese Reporter*, *Wisconsin State Farmer*, *Rhineland Daily News*, and the *Milwaukee Journal-Sentinel*. WXPB Radio in Rhineland did two interviews, as did John O'Ncken for his syndicated farm column. **(Appendix C)**

In response to questions about the cheese plant, I had a web page developed at <buckwheat.hypermart.net>. Visitors are able to see pictures of the dairy and cheese plant, as well as take part in the grant survey. The photos come from a PowerPoint presentation I designed for talks given to farm and community groups. In the last year, I was asked to give presentations for Farm Services Farmstead Dairy Day, Oneida County Livestock Association, Wisconsin Dairy Goat Association Caprine Field Day, Center For Cooperatives Value Added Conference, Oneida County 4-H Field Day, Friends of the Demmer Library and Eagle River Rotary Club (two events). In September and October 2000, I am hosting a Farm Services Field Day at my property and am scheduled to make a presentation at the District 7 Farm Bureau Fall Rally in Antigo.

My biggest promotion project was at the Wisconsin State Fair in August where I ran the Wisconsin Dairy Goat Products Association booth. For eleven days, I did presentations on the Wisconsin Products Stage and talked for 13 hours a day about the benefits of goat milk and goat milk products, the condition of the industry in the state, the joys of raising goats, and the opportunities for others who might want to get involved with the industry. Even though the grant project finishes with this final report, I will continue to promote the industry at every opportunity.

Project Results and Conclusions

The grant project met my original expectations in that a prototype goat cheese plant is now in operation and marketing has begun. Materials have been published that will help others through the development process, and an information network for dairy goat owners in the state is well underway. Media coverage has been wide and generous, which helps create awareness of the value of goat dairying and its place in Wisconsin's diverse farm economy.

There is still work to be done on development of regional cheeses that will take advantage of additives manufactured in the state (ie. Cranberries, sunflower seeds, horseradish, blueberries, etc.). That shortfall is not the fault of the grant project, but of my own production setbacks over the last year.

Farmstead production methods and technologies are different from those of large-scale cheese production because of the small quantities produced and the small spaces available for producing them. In the course of this grant project, Acme Equipment in Madison adapted their small batch pasteurizer so that it can also be used as a cheese vat. There are also several recommendations in the booklet, "Developing the Farmstead Goat Cheese Business in Wisconsin," for low-cost alternatives to high-cost cheesemaking equipment.

While I have been active in dairy goat promotion projects for nearly 20 years, the exposure that this grant project has given me has had some side benefits that are expected to benefit the state's dairy industry. Along with ADD Grant recipients Dave and Mary Falk, I have been invited to several WDA TCP meetings discussing changes to the cheesemakers' licensing procedure (ATCP-69), cheese plant regulations (ATCP-80), and milk producers regulations (ATCP-60). Our input at these meetings means that the needs of the small farmstead producers will not be overshadowed by those of the big cow facilities. The grant project has added credibility to my comments, and has given me access to decision-making bodies of state government.

In the same vein, I have been working with several others in the Wisconsin Dairy Goat Association to lobby the State Fair Board for a goat

milking parlor, which I understand has now been approved. I also approached Fair Director, Rick Bjorklund, on the possibility of developing a small-scale cheese plant on the fairgrounds. My understanding is that the idea is being considered as part of the long-range plan. These projects are both ways to educate the general public about goat milk and goat milk products.

Another area that is difficult to measure is the effect that my project has had on others interested in developing their own farmstead goat operations. Two people who took part in the survey and received my booklet, "Alternative Incomes With Dairy Goats," are on their way to developing alternative businesses. The Kaplewski family of Florence is working toward a fluid milk dairy, and the Phillippe family of Crivitz is starting a goat feeder operation as part of a regional cooperative. It is less likely that they were affected by my project than by their own need to take matters into their own hands. The goat industry in northern Wisconsin is on the verge of great growth, and there are a lot of inventive people out there trying to develop their own niche within it.

From my observations and Year 2 project experience, I draw the following conclusions:

- Setting up a homestead cheese operation is time-consuming and capital intensive. It can be a viable family business only if the operator has the right combination of enthusiasm, energy, business sense, curiosity, family support, financial security, and luck.
- For those people who are not interested in developing their own cheese business, a private label contract with an existing cheese plant is a good alternative. Ideally, several milk producers would work together to develop the milk supply and the cheese market. There is a job opening available to anyone with the enthusiasm and stamina to take on the project of organizing.
- The general public is much more aware of the product we call "goat cheese" and is seeking it out as a tasty and nutritious alternative/addition to cow milk cheeses. However, it is still important to the cheese producer to continue the job of educating potential buyers.

- A successful farmstead cheese operation needs to be supported by meat markets to take the cull adults and excess kids.
- There is not enough baseline information about numbers of goats in the state, dollar value of goat products, amount of milk produced, value of cheese produced, numbers of commercial producers, number of hobby producers, sizes of dairies, or locations of dairies state-wide. Without these numbers, it is hard to convince government agencies that support of the industry through education and research is critical.
- Wisconsin needs an Extension Specialist for dairy goats. That person needs to act as an educator, a researcher, and a compiler of existing information.
- There was a need for step-by-step information about developing the homestead cheese business, which has been answered by the “how to” document produced as part of this grant project.
- There is still a need for a simple, straightforward document that outlines the steps in setting up a dairy.

The Impact on Wisconsin Agriculture and the Family Farm

The Wisconsin family farm has been under siege from low product prices, high taxation, environmental regulation, suburban sprawl, mega-farm competition, governmental regulation, manpower shortages, and lack of understanding by those who don't live in rural communities. In response, many farmers are selling out. Others are either expanding their holdings to industrial size, or searching out opportunities to direct-market their products for higher profit margins. Goat milk producers have the advantage of using small space efficiently and still turning a reasonable profit on a high margin product.

My experience during Year 2 of this grant was that it is frustrating and expensive to “reinvent the wheel” every time there is no resource available to answer basic questions. As a result of this grant project, there is now basic information on how to set up a farmstead goat cheese

operation and a prototype cheese plant for others to view . Those critical resources will help the goat industry in northern Wisconsin move toward its full potential.

Appendix A

Surveying that was begun as part of Year 1 was continued in Year 2 and resulted in 13 additional useable responses. (The unusable responses came off of my web page survey and were from people out-of-state. It was interesting to note how many people in other parts of the country expressed an interest in farmstead cheese production.)

The surveys sought to determine the potential production of goat milk based on current herd size, future plans (or interest), and needed changes to the farm to make it suitable for commercial production. Potential fluid milk production was extrapolated from those numbers based on an estimated average of 1800 pounds of milk per animal over a 305-day lactation. The chart below indicates the maximum and minimum potential production and herd size by county. The counties of Clark, Dunn and Richland, changed from the Year 1 findings, based on Year 2 survey responses. The counties of LaCrosse, Chippewa, Iowa, Green Lake, Rock, Dane and Waukesha were added. Another respondent from the Michigan border was also added.

The chart identifies *potential* herd size and production and does not reflect *current* production and herd size. In most cases, respondents said they needed six months to one year to get set up and producing.

Chart 1: Potential Goat Milk Production by County

County	Min. Total Head	Max. Total Head	Min. lbs. Milk*	Max. lbs. Milk*	# Responding	Large st Herd	Smallest Herd
Barron	350	1815	330,000	3,267,000	4	200	10
Brown	500	500	900,000	900,000	1	500	500
Buffalo	100	100	180,000	180,000	1	100	100
Calumet	Respondent did not answer with specifics 1						
Chippewa	60	80	108,000	144,000	1	80	60
Clark	1,020	1,370	1,836,000	2,466,000	6	500	50
Columbia	200	200	360,000	360,000	1	200	200
Crawford	60	90	108,000	162,000	1	90	60
Dane	80	100	144,000	180,000	2	100	30
Douglas	50	50	90,000	90,000	1	50	50
Dunn	210	260	378,000	468,000	3	160	100
Eau Claire	20	20	36,000	36,000	1	20	20
Florence	100	200	180,000	360,000	1	200	100

Fond du Lac	225	225	405,000	405,000	2	150	75
Green Lake	20	20	360,000	360,000	1	20	20
Iowa	12	18	21,600	32,400	1	18	12
Kewaunee	250	250	450,000	450,000	1**	250	250
LaCrosse	75	75	135,000	135,000	1	75	75
County	Min. Total Head	Max. Total Head	Min. #s Milk	Max. #s Milk	# Re- spond- ing	Large st Herd	Smallest Herd
LaFayette	75	75	135,000	135,000	1	75	75
Langlade	110	150	198,000	270,000	3	90	50
Manitowoc	390	390	702,000	702,000	3	200	30
Marathon	455	475	819,000	855,000	5	250	20
Marinette	235	310	423,000	558,000	4	150	10
Monroe	200	200	360,000	360,000	1	200	200
Oconto	115	160	207,000	288,000	3	60	25
Oneida	120	120	216,000	216,000	3	100	10
Outagamie	225	275	405,000	495,000	2	150	75
Pierce	25	100	450,000	180,000	1	100	25
Polk	100	125	180,000	225,000	2	100	25
Price	100	200	180,000	360,000	1	200	100
Richland	125	130	225,000	234,000	2	100	25
Rock	60	100	108,000	108,000	1	100	60
Rusk	650	700	1,170,000	1,260,000	4	300	50
St. Croix	400	410	720,000	738,000	5	200	5
Sauk	250	250	450,000	450,000	1	250	250
Shawano	130	200	234,000	360,000	3	100	30
Taylor	105	105	189,000	189,000	5***	60	20
Trempealeau	100	120	180,000	216,000	3	100	20
Vernon	100	100	180,000	180,000	1	100	100
Waukesha	50	75	90,000	135,000	1	75	50
Waupaca	575	705	1,035,000	1,269,000	5	300	30
Wausara	120	120	216,000	216,000	1	120	120
Wood	100	100	180,000	180,000	1	100	100
Michigan	406	581	730,800	1,045,800	6	200	20
Total	8,653	11,649	16,004,400	21,220,200	97	6,493	3,237

*Based on estimated average of 1800 lbs per 305-day lactation.

**A second respondent wanted her own herd for homestead cheese, not to ship milk.

***Includes a herd shipping milk to an existing cheese plant.

Developing the Farmstead
Goat Cheese Business
in Wisconsin

by

Sara T. Bredezen

This publication is one of the outcomes of an Agricultural Development and
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Helpful Resources

Recommended Books

Developing the Farmstead Goat Cheese Business in Wisconsin

By Sara T. Bredesen

Introduction

With the help of a grant from the Wisconsin Department of Agriculture, Trade and Consumer Protection (WDATCP), I have spent the past two years setting up a prototype farmstead goat cheese production facility in the small tourist community of Three Lakes in north-central Wisconsin. My mini-cheese plant covers all of 14 x 22 feet and is conveniently attached to my milkhouse, which is conveniently attached to my parlor, which is conveniently attached to the animal housing, which is a convenient walk from the back door of my house.

The concept of “proximity” to the milk supply has been around from the earliest history of nomads driving their portable, four-legged milk producers from grazing site to grazing site. Cheese was found to be a practical method of using excess milk—not to mention preserving it for storage—and any housewife worth her salt put away wheels of cheese in the larder when Nanny or Bossy was at peak production on the farmstead. The natural progression from making cheese for the family, to selling cheese to the neighbors, was the precursor to today’s modern cheese production

facilities. Those farmers who had the knack for making a good wheel of cheese found that there was money to be made, especially if they let the neighbors deal with the milk supply and concentrated their own efforts on production and sales of really good quality cheese. It was still important to have the milk supply close by, but it didn't have to be in the back yard.

This is the point to which today's farmstead cheese producers want to return: That time when really good cheeses were made on the farm from either your own milk or the neighbors' milk, and there was money to be made.

This booklet has been designed with the beginner in mind. It does not have every answer to every question about setting up the farmstead dairy, but it will get you to the people who do. In many cases, I have provided references to helpful materials that have already been published. In those cases, I have paraphrased the information and expect the reader to go to the original for a more in-depth discussion. While many of the points hit upon in this document could apply to cow and sheep dairies, it is written with goats in mind—and Wisconsin goats to be even more specific.

This booklet will give you points to ponder before you take the huge financial step toward starting a new and very capital intensive business. It will offer some tips on avoiding pitfalls based on the experience of someone who took more tumbles than I care to remember. It will help you avoid "reinventing the wheel."

The reader will find boxed comments interspersed in many of the sections in this booklet. To give you a better idea of what happens in the less-than-ideal, real world, I have included a running commentary on what happened when I set up my own prototype cheese facility. It will give the reader a feel for some of the options and how they did—or didn't—work.

This publication is only intended as a guideline to make the process of setting up a farmstead cheese facility a little easier to understand. In all cases, the Wisconsin Department of Agriculture, Trade and Consumer Protection is the final arbiter. Make a point of developing a good working relationship with your local food safety inspector, and consult him/her *before* each step of development.

Flipping a Coin

The Management

So you think you want to start a farmstead goat cheese business? If you are independently wealthy and have more time than sense, you might make your decisions by flipping a coin. For the rest of the world, a little research would be in order.

In November 1999, the Wisconsin Farm Center hosted a Farmstead Dairy Day in Mosinee, WI, with the hope of getting at least 50 registrants who might want to

learn more about developing a cheese or fluid milk farmstead operation. More than 230 people showed up. That doesn't mean that 230 farmstead dairies will suddenly pop up across the state. Starting into this kind of business involves lost sleep, financial insecurity, rattled nerves and strains on whatever home and social life you might have had before the business was born. In other words, there is a certain personality type that can withstand the rigors of entrepreneurship. The Private Industry Council, Self Employment Project, lists some of the demands of the entrepreneurial spirit¹:

- Ability to set challenging but obtainable long-term goals and forgo immediate rewards.
- High energy level and good health, since long hours are a reality.
- Believe in yourself and your goals.
- Would-be entrepreneurs plan, plan, plan and plan.
- Ability to work alone, since starting a business can be lonely.
- Understanding of numbers and a healthy respect for the management of money.

People who want to start their own business—especially a farmstead cheese business—have to develop skills that run the gamut from manure management to milk microbiology. Not only that, there is no convenient network in place that will help you reach others in your area who can offer you advice and counsel based on experience. It is highly recommended that the goat cheese entrepreneur develop a list of names and phone numbers gleaned from conversations and trips to the Internet, then do as many visits to cheese plants and goat farms as possible. See what other operations are like. Collect good ideas and make note of things that might work for you. Ask pointed questions about bad decisions that others have had to live with. Look into your own personality to determine if you are the kind of person who can survive and thrive on the rigors of a business start-up.

Dave and Mary Falk, who operate Love Tree Farmstead Cheese in Grantsburg, WI, offered a wonderful list of questions to be asked before getting started². Some of the more practical include: "Who is your market? How are you going to get your product there? How much are you going to charge for your product? Have you written a business plan? How much do you think that your product is going to cost to produce?" Their list ends with some of the "reality check" questions, like: "Who is going to do the milking? Who is going to do the laundry? Who is going to clean the cheese room when you want to sleep? Who is going to turn the cheese when you want to sleep? How long can you go without sleep?" Falk's list should be recommended reading before going on to future planning.

Bill Wendorff, Department of Food Science at the University of Wisconsin—Madison, published a booklet, *"Considerations for Potential Farmstead Cheesemakers"*³, that outlines many of the other concerns that should be included in the decision-making process before starting a new farmstead business. While many of the concerns that Dr. Wendorff brings up in his booklet are also discussed in later chapters here, he

covers the topics from a different view point and in great detail. The following is a brief summary of his points to consider:

1. Soundness of the dairy operation—Current milk production must be efficient and profitable before planning to expand into other ventures such as milk or cheese production.

Comment

In my case, there was no way to be profitable as a milk producer, because I don't live where one of the existing plants would pick up my milk. I felt that my only option was to create my own opportunities with whatever skills and options I could muster. I like chemistry, problem solving and marketing, so cheesemaking, presented an intriguing possibility.

2. Qualification of the operator—Necessary skills such as cash management, marketing, food processing techniques, and employee management need to be addressed.
3. Potential markets—"Farmstead Cheeses must have some uniqueness and must be marketed on its high quality to justify high prices and a good profit." Those markets need to be developed, based on a study of potentially unique demographics or processing techniques that would make your product different from your competition.
4. Type of product—Once a product type is determined, it is important to maintain uniformity of the product and promote it with labeling and packaging that will establish a quality image and justify a premium price.
5. Regulations and licensing—Wisconsin requires milk production facilities (farms), cheese plants and cheesemakers to be approved and licensed under the WDA TCP, Food Division, rules. [More on licensing in a later chapter.]
6. Plant design and cost—the design of the plant is determined by the type and volume of cheese to be produced and whether storage is needed for aged products. Facility plans must be approved by the WDA TCP and must follow the Dairy Plant Standards set out in Chapter A TCP-80. [More on plant design and cost in a later chapter.]
7. Environmental Concerns—Disposal of wastewater, whey and spent brine solutions must be considered before moving ahead with a project. There are legal barriers imposed by the Department of Natural Resources and WDA TCP, as well as local ordinances to consider. Safe, high quality process water is also essential.
8. The financial plan—"The major problem facing farmstead cheese plants in startup is getting a handle on production levels and the required operating capital for the first few years."

One other publication that would be important to read is the Feasibility Analysis of Gerald and Elise Heimerl's Agricultural Development and Diversification Grant project⁴. In 1992 and 1993, the Heimerls researched the feasibility of making farmstead cow cheeses at their Cleveland, WI, dairy. They hired financial planners to crunch numbers for their cost analysis, and they hired an engineering firm to develop construction plans for a plant and retail store. At that time, construction costs ran at approximately 35\$/sq. ft., and the designers felt that anything less than 6,000 sq. feet would be undersized. That came to \$210,000 for the facility, and another \$137,000 for equipment. They expected to enter the market at 75,000 pounds of cheese a year, increasing to 300,000 in the fifth year. The Heimerls were studying a farmstead operation that is probably much larger than that required by a goat owner, but the basic information is of value to the reader.

Comment:

Thank goodness goats are little animals! My entire cheese plant is only 14 x 22 feet and was built at a cost of approximately \$6,000. Granted, there was a lot of sweat equity involved, but the per foot cost still came out closer to \$20/sq. ft. Equipment costs came to about \$25,000. I'm also looking at producing about 600 pounds of cheese in the first year, increasing to about 1,500 pounds at five years.

The Market

The goat industry in Wisconsin has been tiny but active for more than thirty years. Today, there are four commercial cheese plants in the state (Bresse Bleu at Watertown, MontChevre' at Belmont, Bass Lake at Somerset, and the Southwest Goat Cooperative at Mt. Sterling), two farmstead cheesemakers (Fantome Farm at Ridgeway and Buckwheat Acres at Three Lakes), and one Grade A fluid milk bottler (Sunshine Farm at Portage).

In 1998 and 1999, when I surveyed goat milk cheeses in the stores in my area of north-central Wisconsin, I found that the cheeses were coming from California and Pennsylvania. There was not a Wisconsin cheese to be found. Today, that mix has changed, and the commercial cheese plants are making inroads in the north. For the farmstead producer, it is important to not only know who the competition is, but what the competition is charging for its product and how it is being packaged. A survey is the best method.

To survey the market, choose the area you expect to service in your first three years and visit as many grocery, deli and specialty food stores in that area as possible. Make a record of each goat cheese product, where it comes from, the size and type of container (ie. 4 oz. extruded log in vacuum pack) and the price. Make notes of packaging and label ideas that you like and don't like, and look at the cow cheeses for product ideas that might be improved upon if done as a goat milk product. Once you

know what consumers can (or can't) get in the grocery store, you can work up a plan of attack based on the following questions:

- What is my biggest competition?
- What products do the stores not carry?
- Is my best cheese better than the commercial producers'?
- Is there an untapped ethnic market in my region that I can cater to (ie. Latino, Middle Eastern, Asian)?
- Can I provide services (recipes, menu ideas, delivery) that will make my cheese more attractive?

Comment

My original plan was to produce chevre in a variety of flavors and try a little cheddar on the side. While waiting for my cheese press to be fabricated, I found myself stuck at the cheddar curd stage. I tried bagging and selling some, just for the fun of it. They went like hotcakes and are now my biggest seller. Tourists are snackers and don't want to mess with finding a knife and crackers to enjoy their cheese. Here is a case where market research did not predict the product that would be most successful.

There is a lot more to the science of market research, but finding answers to these questions is the quick way to determine what kind of product(s) will compete most successfully in your area. Don't be afraid to ask the cheese buyer at a store how he/she chooses a product and how much goat cheese sells in a week's time. These are important facts that should be added to your decision-making process.

A note of caution here: It is a good idea to canvas the grocery and specialty food stores to find your competition, but that doesn't mean those are the best places to sell your product. Direct retail sales are much more profitable than wholesale. A store owner expects a 30 to 50 percent mark-up for specialty cheeses and will require you to come in with a wholesale price that will make the final sale price palatable to the consumer. If you choose to go this route, keep your pricing consistent from store to store, and work out the details with the store buyer before delivering any product. Those details would include how to deal with spoilage, how much free product is available for samples, what labeling is required and who will do it, how will deliveries and payments be handled, and how will your products be presented in the refrigerator case.

Retail means selling directly to the consumer. Part of analyzing the market is deciding who your target audiences will be, and where can you find them. Less than five years ago, goat milk cheeses were considered upscale, gourmet products and would appeal only to deep pocket books and highly educated taste buds. Thanks to middle-America media icons like Rosie O'Donnell and Martha Stewart, goat milk cheeses have been introduced to the general public as a versatile menu item that is worth the extra pennies. There are now more potential customers for our products, and they

will be found in a wider range of selling environments. Farmers' markets, food fairs, restaurants, on-the-farm sales, and Internet advertising all offer ways of direct marketing cheese products. Each has advantages and disadvantages to consider:

- Farmers' Markets and Food Fairs
 Pros—Health-conscious and informed consumers consider good food a good investment; Other vendors help draw crowds; Great opportunity for education and one-on-one contacts; Potential for large income in a short time; Can develop a devoted following; Little advertising costs
 Cons—Seasonal and at the whim of the weather; Requires portable equipment with set up and tear down headaches; Usually requires early rising and travel; Profitable if they are in large population centers, or if there are several each week
- Restaurants
 Pros—Food oriented audience; The chef will work with you to find the right products; Year 'round sales potential; Little or no advertising costs;
 Cons—Your prices compete with wholesale distributors' prices; If your production is seasonal, there is no product in the off season; No brand identification by the consumer
- On-the-farm sales
 Pros—No travel or set-up and customer comes to you; Can work on other farm projects when there are no customers; No special equipment needed for display unless you want a store-front (now you're talking money outlay!);
 Cons—Higher advertising costs; Must keep some kind of regular hours; Interruptions in daily schedule; The tidiness of the farm, or lack of it, becomes advertising for your business (may be a pro, too)
- Internet advertising
 Pros—Low-cost, slick advertising; Stay-at-home business run on your own hours; Can reach a national/international audience
 Cons—Must have Internet savvy; Shipping costs must be figured into your prices; Must either deal with credit card expense or accounts receivable headaches; Impersonal

The Wisconsin Farm Center is working on a grant proposal that, if accepted, would connect farmstead dairy operators in the mid-west in a network for the purpose of education and market support. The Center hopes to bring together all of the creative marketing ideas from farmstead producers and share them for the benefit of all. Even if the grant is not accepted, the Farm Center is a good source of information for marketing ideas.

The Money

At this point, it is time to crunch numbers. If you need an accountant or your bank financial assistant to help, by all means find someone who understands the process and can explain it to you in lay terms. The rule of thumb for any new business is that you won't see any kind of a profit for the first five years. Unfortunately, bills still have to be paid and animals still have to be fed, so cash flow charts figure heavily in the new business vocabulary. Your financial assistant needs to help develop a business plan based on the following calculations:

- Your cost for producing 100 pounds of milk (which will make between 8 and 12 pounds of cheese, depending on what variety you are making)
- How many hundredweight (cwt.) of milk you can reasonably produce in a year
- The dollar amount you need to earn on each pound of cheese to cover your costs, plus a reasonable profit
- Your predicted growth from year to year
- Your expected dollar outlay for equipment, supplies and operating expenses
- Your existing debt

The Small Business Administration has a handy fill-in-the-blank booklet to help you develop a financial plan, and the Wisconsin Farm Center has a package of information on financial resources for agriculture enterprises. There are loans and research grants available from both the state and federal governments, and financial assistance at very low interest rates. If you live in a town with a population of less than 6,000, be sure to look into the Rural Early Planning Grant which will pay 75% of eligible costs up to \$3,000 to hire a professional planner to do a feasibility study. Don't forget to check with your county government for an Economic Development Corporation office and personnel who can help you at the local level.

Comment:

For two years, I held an Agricultural Development and Diversification grant from WDATCP, which helped me develop my cheese business. The grant did not pay for capital equipment purchases, but paid me a salary to research the potential goat milk production in the northern part of Wisconsin. It also covered supplies needed for creating regional cheeses and advertising materials for marketing those cheeses. On the surface, grants look like an easy way to get free money, but the truth is, they are hard to come by and extract a pound of flesh for each penny of funding. If you have a serious research or development idea that you feel could advance the cause of agriculture in the state, by all means pursue grant funding, but don't look at it as a hand-out

Financing a new business takes time, and money (or lack of it) gets in the way of moving forward with your plans. On the other hand, if you don't do a good job of developing a business plan and feasibility study before you start buying equipment, you will probably find yourself in tough financial straits at a later date. I will add one more suggestion from the Private Industry, Self-Employment Project. They suggest that new business owners "buy second-hand, lease, rent and buy with cash."

"The Manual"

As I pointed out in the introduction, the Wisconsin Department of Agriculture, Trade and Consumer Protection is the final arbiter of questions concerning milk and cheese production in Wisconsin. (At some point, you might want to involve yourself with interstate sales and U.S.D.A. licensing, but that will not be covered in this document.) The following chapters from WDA TCP Food Safety Division should be on hand for quick reference:

A TCP-97—Food Regulation

Identifies the scope of food safety regulations and gives an overview of licensing.

A TCP-60—Dairy Farms

Regulations, down to the slope of window ledges and candle power of overhead lights in your milking operation. Includes fee structure for licensing, dairy farm standards for building and equipment, milk quality standards, drug residue testing, and inspection requirements. Read thoroughly and often.

A TCP-69—Buttermakers and Cheesemakers

Explains qualifications, testing procedures and licensing process. ***This section is undergoing revision and may be rewritten in the next several months. A shortened apprenticeship period is being added, with additional classroom study required.***

A TCP-80—Dairy Plants

Specifics on construction of the building and required equipment within. Also discusses personnel sanitary practices, equipment sanitation, milk quality testing, pasteurization requirements, and dairy plant records and reports.

A TCP-80-Appendix A—3-A Sanitary Standards and Accepted Practices

This is a listing of chapter heads in a much larger book. In most cases, you don't need to know the information yourself, but anyone fabricating stainless equipment for you **must** understand and follow 3-A standards. This appendix will give you an idea of how many pieces of equipment are covered. WDA TCP has copies of the individual chapters

available, and the complete standards can be purchased through the International Association of Milk, Food and Environmental Sanitarians, Inc., 6200 Aurora Ave., Suite 200 W., Des Moines, IA (phone 800-369-6337)

A TCP81—Cheese Grading, Packaging and Labeling

The grading standards do not apply specifically to goat milk cheeses, because they are in a category of their own. However, the information is part of the cheesemaker's test and is worth knowing. There is also a short section (81.20) on labeling requirements.

A TCP82—Milk Haulers

Even if you don't haul milk any farther than from the bulk tank to the pasteurizer, a cheesemaker has to be licensed as a milk hauler. In fact, you have to pass the hauler's test before you can even take the cheesemaker's test. However, once you have a cheesemakers' license, you don't have to renew the hauler's license.

"Bulk Milk Haulers Training Manual"

Outlines procedure for weighing and sampling milk, and determining milk quality. Note that some copies have not been revised to include information on goats for acceptable somatic cell levels.

"Dairy Plant Resource Manual"

Includes WDA TCP personnel contact information and assignments of food inspectors, applications and instructions for licensing a milk producer, instructions for milk quality reporting, drug residue reporting, and a license fee schedule. Farmstead operators become the licensing agents for their own dairy herds and need to go through *most* of the same reporting that the big 100-farm cheese plants do.

"Food Safety Regulations for Small Food Processing Facilities & Farmers Market Vendors"

Three page flier with general information on who must be licensed and what the label requirements are for processed foods. Includes a short paragraph about storage of cheese curd for sale at a farmers' market.

"A Food Labeling Guide"

While Wisconsin does not oversee product labeling, the U.S Food and Drug Administration does. Small businesses are exempt from most labeling requirements, but you might as well have an approved label while your business is still small. Laura Berkner Murphy is the food labeling specialist for WDA TCP (608) 224-4721. If you choose to be in the "Something Special From Wisconsin" promotion program, contact Kathy Neher for an information package. There are labeling requirements included for that program at (608) 224-5128.

"Milk Pasteurization Controls and Tests"

This is the training manual for pasteurizer operators and is nearly 300 pages. If you take the pasteurizer training, you get it as part of the course fee. Contact the U.S Food and Drug Administration office in your area for information on receiving the manual.

WDA TCP is not only the arbiter of rules of regulations, but also the disseminator of all these guides. Contact the Madison office, and they can put you in touch with your area administrator to order the references. Their office is (608) 224-4700.

Producing the Milk

Legal Requirements

Milk sales off the farm, whether Grade A or Grade B, are licensed by the State of Wisconsin. Milk sales at the farm do not require a license if:

- The sales are “incidental” (customers are not regular, no advertising)
- The milk meets Grade A standards
- The buyer provides his or her own sanitized container
- You are willing to accept liability

Our concern in this document is production of Grade A or B milk that will be used on the farm for cheese. You need a license.

ATCP-60 is your reference, but here is a quick overview to give you a feel for what you’re getting in to:

- A dairy is licensed yearly at a fee of \$20, which is paid by the cheese plant operator (you), and is inspected by WDA TCP twice a year if Grade A, and at least once every two years if Grade B
- Plans for a milkhouse have to be approved by the Department prior to construction or alteration.
- The facility must be inspected and water tested before a license will be issued.
- Animals can be milked in either a parlor or a milking barn. Walls, floors and ceilings have to be light colored and washable; floors sloped for proper drainage; doors self-closing and solid; and no “other” animals allowed in the area. If your milking area is not separated from the rest of the barn by a wall, the whole barn is considered fair game for the inspector.
- Milking area ramps, platforms and stanchions have to be constructed of a non-porous, washable material (no wood).
- The milkhouse has to be in a separate, enclosed area and has to have floor, walls and ceiling of a light-colored washable surface that is impervious to water. Doors have to be self-closing and swing out, and can not open into a barn or parlor unless they are solid (not screened).

- Water heating capacity is specific to the type of cleaning you are doing. At least 10 gallons for washing if milk is stored and cooled in cans, 30 gallons for manual cleaning of bulk tank, 50 for mechanical cleaning, and 75 for C.I.P. cleaning.
- A two-compartment wash and rinse sink is required and must be big enough to accommodate your equipment.
- A separate hand-wash sink is required, and you will need a hose hanger and hose fitted with anti-siphon device and both hot and cold water.
- There is a hose port requirement, but you need to talk to your area inspector for a variance if your milk is being transported from room to room, rather than to an outside bulk truck.
- Light fixtures must be shielded.
- Single use towels and a covered waste basket are required.
- The water supply has to be safe and protected from back flow and cross-connections. Water is sampled every two years. (Cheese plant water is inspected twice a year and will cover your dairy inspection if water comes from the same source.)
- Animals can be milked by hand, by machine into cans, or on a pipeline system. Each method has its own standards. Read ATCP-60 carefully.
- A bulk tank can not be placed directly over a floor drain, and must be far enough away from walls or other equipment to allow for cleaning.
- If you have a very old bulk tank, be sure the fittings are stainless steel, that it has cooling capacity to meet the standards, and that sanitary seals are in good condition.

Equipment Essentials

When we talk about sanitary milk-handling equipment, we are usually talking about stainless steel, which translates into “expensive” in just about every language. There are commercial sources for used milking equipment listed in the appendix, and you can watch the newspapers for farm sales where good deals can be had. In some cases, milk equipment dealers (DeLaval, Surge, Universal, etc.) know where there is good used equipment available. If you are looking for a bulk tank or milking system, talk to farm refrigeration specialists, used equipment dealers and area farmers for their recommendations and arguments for and against different brands.

The amount of money you spend in the parlor and milk house depend on how much work you want to do yourself, and how simple or sophisticated a system you want. In the parlor, you need light colored, washable walls, but they don't have to be dairy board (\$25-\$35 a 4x8 sheet). Cement or block walls can be painted with dairy enamel to make them non-porous and washable. The same is true with wood walls,

but all seams have to be caulked and well painted. I visited one parlor where the walls were covered with corrugated tin roofing.

If you choose to put a pit in your parlor, you will probably be working with poured concrete or cement block. Use a good sealant that will hold up under the acid conditions of manure and spilled milk. If you use a ramp and platform system, cement and metal make a good choice.

Comment:

My parlor is a herringbone system with a platform and stanchion for four animals on one side of the room and for six on the other. I started with a fabricated steel frame and used plastic-covered wood for the platform. It was washable, but didn't cut it with the inspector. He gave me time to change over to bar-grid. I still cover it with a rubber runner, because it is hard to keep the grid clean. The welded frame, 25 feet of removable bar grid, four ramps with grid, and ten stanchions (my design) cost about \$1800 to have fabricated..

Milking equipment prices run a wide range, from \$25 for a stainless steel pail for hand milking, to several thousand dollars for a pipeline system with Clean In Place (CIP) cleaning unit. Complete pipeline systems can be purchased at auction for under \$1,000, but know what will fit in your barn and milkhous, and know what kind of system you want before you make your bid. Remember that a CIP system makes the work go faster, but you need to maintain it, and it will cost you more money to buy initially. The number of goats you are milking will be a factor in choosing your milking system.

If you choose to milk with a vacuum line and milk cans, used equipment can be found at about \$100 a piece for a 50 pound stainless can with lid, over-flow valve, shut-off and pulsator. Plan to purchase new air line and milk hose, as well as inflations. Cow claws will work for goats, and can even be divided in half to milk two goats at once. Nasco and Caprine Supply have "Y" connectors for splitting the lines. They also have a really neat design for a claw made especially for goats. Don't forget the vacuum pump to run your system. PVC pipe fitted with stop-cocks works well for the vacuum line into the parlor.

In the milkhous, you will need a two-compartment sink, separate hand sink, drain rack, and a bulk tank. Plan your milkhous construction to include a section of wall that is removable for getting the big equipment in and out. Some farms have used a double sliding glass or a double-wide commercial door for the purpose. You'll probably also want some kind of storage cabinet for supplies. By the way, floor drains in a milkhous don't have to run to a septic system. You can have a simple down-hill line into a field. The water can not drain into the pasture or yard where animals are kept, can not run into a stream or lake, and the outlet must be kept clean to control flies.

Bulk tanks purchased new after January 1, 1999, must include a chart recorder and will cost a bundle. Used tanks are available through used stainless dealers and by

advertising in your area newspapers. Some systems have the compressor separate from the tank, and you'll need to make accommodations in your building for the compressor. You will also need to plan a fan system that will keep the milkhouse cool and dry in warm weather. Some bulk tanks have the compressor mounted on the body or frame so the unit moves as one piece. A third type, an ice bank, literally keeps the milk on ice to cool it. Each system has its advantages and disadvantages.

Comments:

I had a chance to buy a 500 gallon bulk tank, compressor with freon, three Universal floor-type cans with all the necessary parts, a three-year-old vacuum pump, and three-gallon stainless strainer for \$1,000. The bulk tank was too big, so I sold it and the compressor for \$500 and got a self-contained 150-gallon DeLaval for \$100. My wash sink is a three-compartment stainless sink bought for \$5 from a Lion's Club auction, and the hand sink (\$15) is set in the cutout piece from a counter top and mounted to the wall with shelf brackets. For another \$15, I bought a used laundry cart from a motel to roll the can into the parlor, and spent \$5 at a rummage sale for a medicine cabinet with mirror for emergency supplies. My drain rack is a PVC pipe frame that holds two plastic coated wire display shelves from a grocery store. The only new equipment was a metal cabinet for \$65 and an automatic bucket washer from Nasco for \$190.

Producing the Cheese

Legal Requirements

Wisconsin has a long heritage of milk production and cheese production that has also led to a long heritage of rules and regulations intended to protect the state's reputation for high quality, safe dairy products. As cheese plants have grown in size and complexity, so have the regulations. WDA TCP periodically revises the regulations to accommodate changes in the industry, and this year, changes are being made to the cheesemakers' licensing requirements to help farmstead producers. The current rules offer three options:

1. An 18 month apprenticeship at a cheese plant with one month making cheese
 2. A 12 month apprenticeship at a cheese plant, plus the Cheese Technology Short Course, or equivalent
 3. A four-year dairy related course of study and a six month apprenticeship
- The new option will shorten the apprenticeship to two months and require a number of short courses, including the Cheese Technology Short Course, sanitation course,

pasteurizer operator course, and one or two others to be named. The changes have not been finalized, but are in the works. Whether you choose to get your own cheesemakers' license, or hire someone else to make cheese for you, I would strongly recommend the Cheese Technology Short Course as an excellent over-all program. If nothing else, it will help you find out what you don't know. The class runs four days in the fall at the Center For Dairy Research in Madison, and offers a fifth day making cheese in the plant at Babcock Hall.

You do not need a license to make cheese for your own family, employees or non-paying guests, but you do need a license to distribute or sell cheese off the farm. Regulations for a dairy are found in ATCP-80—Dairy Plants, and includes licensing information, milk quality standards, records and reporting, facility requirements, and pasteurization information. It includes chapters on fluid milk production and non-cheese dairy products, so the reader needs to pick and choose the parts that apply to cheese production. Read the document carefully and often. Listed below are the high points:

- Dairy plant construction and plans must be pre-approved by WDA TCP. "The department may issue a written waiver granting a variance from a construction standard...if the variance is reasonable...and will not compromise the purpose served by the construction standard. 80.08(1)(b)"
- The basic fee for a Grade B license is \$80 annually and only increases if you process more than 1,000,000 pounds of milk a year. There is a monthly procurement fee of .2 cents/cwt of Grade B milk, but WDA TCP will work out a payment schedule for that one, because it tends to be such a tiny amount from a farmstead.
- If you are using milk from your own animals, you have to inspect, test and report as if the herd were a separate entity. If you buy milk from other farms, you need to pay their license fee and provide inspection, testing and reporting.
- Floors, ceilings and walls must be non-porous, light colored, and easily cleaned, and joints must be coved. Window ledges have to shed water (at least a 45 degree angle).
- Light fixtures must be shielded.
- You must either have dedicated footwear at the door into the plant, or a sanitizing footbath in the entryway. Hair nets are also required.
- Packaging materials and product ingredients must be stored some place other than in the processing area.
- A separate room is required for changing clothes. It can be a small entryway/airlock.
- Plant inspections are carried out by WDA TCP twice yearly, and water is tested at that time. The inspection includes review of reports as well as inspection of the facility.

- If equipment is being manually cleaned, a stainless steel sink with three compartments large enough to accommodate at least half of the largest piece of equipment is needed.
- A separate hand wash sink with hands-free faucets is required in the processing area (something you can turn off and on with your elbow will work). You also need single-use towels and a covered wastebasket.
- Hot water must be available in sufficient quantities to maintain sanitary standards.
- A hose hanger and hose fitted with anti-siphon device will be needed for cleaning the plant.
- There is a whole section on personnel and sanitary standards that says no jewelry, no eating, no sores or infected wounds, no nail polish, no unrestrained hair or beards, no smoking, no long finger nails, and no dirty hands in the cheese plant.
- Product contact surfaces must be stainless steel, heat resistant glass, or food grade rubber or plastic.
- Clean equipment and utensils must be stored where they can air dry without contamination.
- The cheese plant operator is responsible for sampling milk and providing monthly milk quality reports to WDA TCP. Since the test has to be provided by a licensed laboratory, you will probably need to contract with a nearby dairy or certified lab to do the work.
- Each vat of milk must be tested for antibiotic residue before being used for cheese. This can be done by a licensed lab, but the time involved may make it worthwhile to buy the equipment and take two or three hours of training needed to be certified.
- Currently, only cheeses aged for 60 days or more may be made with raw milk. In all likelihood, this rule will be changed within the next five years, so that only pasteurized or heat-treated milk can be used for cheese production of any type. Wisconsin requires pasteurizer operators to be certified by the state. There are training options that range from four hours for the quick study, to two days. The test covers mostly H TST (High Temperature Short Time) systems that you may never touch in a lifetime. This is another area that WDA TCP needs to review for farmstead operators. In the meantime, good luck!
- The pasteurizer needs to be designed to 3-A Sanitary Standards and approved for operation by WDA TCP, and thermometers must be recalibrated annually. H TST systems have a long set of rules too numerous to paraphrase.

Equipment Essentials

Stainless steel figures heavily in cheese plant equipment, so the costs can run pretty high. Restaurant supply houses often carry used sinks and tables of good quality and at reasonable prices. Drain racks can be very fancy stainless shelving or very inexpensive plastic. Food contact surfaces are supposed to be food grade, but there are a few exceptions for shelving in a cooler or aging facility if the cheesemaker can show that food safety will not be compromised by the use of non-standard shelving. One example is the cedar boughs used by Mary Falk for aging her sheep milk cheeses. Traditional wood shelving for aged Italian cheeses is another. Discuss your concerns with your inspector.

The pasteurizer is going to be the most difficult to deal with. A Home Health pasteurizer is fine for your house milk but will not meet state standards. My favorite person at WDA TCP for answering pasteurizer questions is Glen Goldschmidt at the Green Bay office (920) 448-5107. He may be able to put you in touch with someone closer to your area.

There are some companies marketing new H TST systems for juice pasteurizing, and even some for milk. They run between \$16,000 and \$18,000 and could pass inspection with a few modifications. The best way to find them is to search on the Internet, then check with WDA TCP for their opinion on the system. If you don't have a spare \$18 thou', you might want to look for a used batch pasteurizer. The batch system is a stainless steel vat with tight fitting lid, stainless leak-control valve, and a package of three different thermometers. It might be powered by electric coils, steam or hot water, and is more likely to be found in the 50 to 150 gallon size appropriate for a farmstead operation. It will also have some kind of a water jacket or cooler to bring milk down to the starter temperature when pasteurization is complete. **Don't buy anything without a written guarantee that it will pass inspection or be returnable to the dealer.**

Used pasteurizers are very difficult to find, because they are being shipped to small plants in South and Central America. Another option is to have a pasteurizer fabricated for you according to your size and use requirements. Bill and Beverly Butler in Whitehall, WI, had a local stainless fabricator make them a new batch pasteurizer after they accidentally imploded their commercial model. They designed it to fit the space and use they had in mind for their sheep milk yogurt and cheese. Again, don't hand over the last payment until the system is certified.

An electric pasteurizer is very expensive to operate but low maintenance and self-contained. If the pasteurizer is water or steam heated, you need a separate boiler and a separate room in which to put it. There are as many types of boilers as there are ways to fire them. If you use steam, go for low pressure for safety and to eliminate the extra paperwork associated with a high-pressure system. Hot water is not recommended for large cheese plants, but works just fine for a farmstead operation. The Butlers found an old boiler that takes up a mess of space, but was cheap and works for what they need. David and Mary Falk fire their boiler with wood.

Comment:

I wanted to save on space and equipment costs by making cheese in the same vat where the milk was pasteurized. Acm e Equipment in Madison came up with a nice little 100-gallon, 4'x4' square unit that m etspecifications—both mine and the state's. There were a few initial design flaws that had to be worked out, but the unit is working perfectly. Cost was the biggest problem. The vat was \$10,000, and the 300,000 BTU gas-fired boiler to run it was another \$10,000, including controls and installation. I went with the new gas boiler with the understanding that it provides all of my hot water on demand and could also be used to heat the barn, the milkhouse, the cheese plant, our home, and a much larger cheese plant in the future.

You will need a refrigerator of some kind to store your product. To get the capacity and food grade that you need, look for used equipment through a restaurant supply house. WDA TCP is not very clear on what kind of a refrigerator would be acceptable in a food processing area, so ask your inspector. Each cooler needs to have a glass thermometer in the freezer section and one at the top and bottom of the refrigerator section.

Comment:

The little plastic water tubes that come with cut flowers work slick in the 'frige. Fill the tube with water, shove the thermometer through the soft plastic cap, and wedge the tube between wires on the shelf. The water maintains a constant temperature around the thermometer, and the tube keeps it from getting bumped and broken. I have a small refrigerator in the entryway for antibiotic residue test kits and other ingredients, and a big double-door walk-in cooler in the processing area. I'm still not sure I like the big cooler, because it uses a lot of energy and loses cold when the door is opened. It is fitted with rolling racks for aging cheese. Cooler, used \$850. Two food grade plastic-coated racks on wheels, six shelves, 2'x2', new \$475.

Some basic laboratory equipment and calibrated scale will be necessary. A pH meter makes acid testing quick and accurate, but a simple titratable acidity system is less expensive and passable. A few calibrated beakers, measuring cups and spoons are helpful. If you are doing your own antibiotic residue testing, the simplest to operate is a SNAP Test. The block heater costs from \$85 to \$150. Inexpensive used ones are sometimes available from cheese plants. Ask the field person.

When planning the cheese plant construction, allow for a knock out wall section for installing and removing large pieces of equipment. Situate the floor drain so it is easily accessible for cleaning, and locate the hose and hanger is such a way that you can reach the whole products area for cleaning

Comment:

My entire plant is 14'x22' with an interior 4'x8' entryway. The processing area has the pasteurizer, a 3'x6' three-compartment sink, a 5-foot work table, the double cooler, a plastic utility shelf for drying equipment and a milk pump on wheels for pumping milk out of my bulk tank and into the pasteurizer. (A milk pump, used, can cost between \$500 and \$800. If there is a way to build the cheese plant lower than the milkhouse, a gravity feed system would save a lot of money.) The final item is a Rubbermaid rolling utility cart with holes drilled in each of the two shelves for drainage. I fill ten-gallon food storage containers with pasteurized milk for making soft chevre, and roll them into a quiet corner until the curd is formed.

Packaging of the finished product is another consideration. If you are just wrapping with plastic, filling a deli container, or stuffing a plastic bag you won't need any special equipment. If, however, your product is going to be vacuum packed or shrink-wrapped, there will be the added expense and space requirements of packaging and machinery. I know a cheesemaker who puts cheese in the bags at her farmstead and carries them in a cooler to a business that vacuums and seals the bags for a small charge. Since a vacuum system can cost upwards of \$4,000, the inconvenience of commuting to another location might be worthwhile. The type of packaging you use can greatly increase or decrease the shelf-life of a product. When calculating the cost of different packaging options, you have to factor in the cost of lost product due to spoilage.

The Private Label Contract Option

By the time you have worked up the business plan and researched the options covered in this paper, you may decide that you still would like to make cheese, but you can't afford the facility or aren't interested in taking on the required work load. Another option is to contract with a nearby cheese plant to make cheese from your milk and put your label on the package. A problem may arise in finding a plant that is small enough for your milk production, and one that is willing to clean and restart the pasteurizer for a small run of goat milk. If you had several producers in the area who wanted to work together on a private label project, there might be better success at getting a plant manager interested.

The private label contract, as any other type of contract, should be looked over by an attorney to protect both you and the cheese plant. There are some specifics you will want to discuss with the plant manager ahead of time and include in the contract:

- How will the milk get to the plant, at whose cost, and on what kind of a schedule?
- How much milk is needed to fill the vat?
- How much product can I expect to get out of each vat of milk?
- Does the cheesemaker know how to make the product I want or is he/she willing to help me develop a new product?
- Where will the labels come from and who will attach them? At what cost?
- What packaging options are available and at what cost?
- Will the cheese plant add my product to its distribution system, or will I be marketing it myself?
- Can I barter some kind of service to lower my cost?
- What is each party's responsibility for lost, damaged, or unsalable product?
- Is there a storage charge for product left at the plant?
- Are there times of the year that the plant will be too busy to service my contract?
- Are you making a competing product for someone else?
- How will license fees and reporting be worked out? (Check with WDA TCP on this one.)

Conclusion

The K.I.S.S principle (Keep it Simple, Silly) applies to setting up a farmstead cheese plant. There is no need to have the most expensive, top-of-the-line equipment, and much of what you need is available through resale businesses. Several stainless steel dealers are listed in the appendix, as are several other helpful resources.

Visit a lot of farms and cheese plants, and ask a lot of questions. No question is stupid unless you don't ask it. Above all else, discuss your plans with your WDA TCP inspector. You will save yourself a lot of time and frustration later on in the process.

Developing the farmstead goat cheese plant in Wisconsin will prove to be a lot of work, but it should also prove to be a rewarding enterprise, both financially and emotionally.

¹ Private Industry Council, Self Employment Project. *The Entrepreneurial Spirit Demands* (1 page). Available from Wisconsin Farm Center, (800) 942-2474 from the 1999 Farmstead Dairy Day.

² LoveTree Farmstead Cheese compiled questions available from Wisconsin Farm Center (800) 942-2474.

³ *Considerations for Potential Farmstead Cheesemakers*, (Jan. 9, 1998) W. L. Wendorff, Dept. of Food Science, University of Wisconsin—Madison.

⁴ *Feasibility Analysis of Farmstead Cheese Production on a Wisconsin Dairy Farm—Final Report* (Jan. 12, 1993), by Gerald and Elise Heimert. WDA TCP-Marketing Division-ADD Grant. Available by calling (608)224-5136.

Helpful Resources

Used Equipment Suppliers

Ulmer Dairy Equipment
8628 Branch County Line Road
Pulaski, WI 54162
920-822-8266

Paget Equipment
715-384-3158

Midwest Stainless Inc.
E2250 570th Ave.
Menomonie, WI 54751
715-235-5472

Midwest Dairy Supply
Weyauwega, WI
920-867-3048

Koss Industrial
Green Bay
800-844-6261

Stainless Steel Fabricators

(See your local directory)

Acme Equipment
Vondron Rd.
Madison, WI
608-222-6302

DR Tech, Inc.
23581 Johnson Road
Grantsburg, WI 54840
715-463-5216

Stainless Steel Fabricating, Inc.
202 Industrial Drive
Columbus, WI 53925
920-623-3003

Thomas Technical Services
Neilsville
715-743-4666

Cheesemaking Supplies (starters, rennet, forms, etc.)

New England Cheesemaking Supply
Company Inc.
P.O. Box 85
Main Street
Ashfield, MA 01330

Dairy Connection
8616 Fairway Pl. #101
Middleton, WI 53562
800-810-0127

Cheesemaking Equipment (laboratory, sanitary fittings, thermometers, milk house, etc.)

Nelson-Jameson
Box 647
Marshfield, WI 54449
800-826-8302

Nasco
Ft. Atkinson, WI 53538
800-558-9595

Idexx (SNAP Test)
One Idexx Dr.
Westbrook, ME 04092
800-321-0207

Recommended Books

Cheese and Fermented Milk Foods (Volume I: Origins and Principles/Volume II: Procedures and Analysis by Frank V. Kosikowski and Vikram V. Mistry, Pub. F. V. Kosikowski, Westport, CT, 1997.

The Fabrication of Farmstead Goat Cheese by Jean-Claude Le Jaouen, Pub. Cheesemakers' Journal, Ashfield, MA, 1990.

Goat Cheese: Small-Scale Production by the Mont-Laurier Benedictine Nuns, Pub. New England Cheesemaking Supply Company, Ashfield, MA, 1983.

Dairy Processing Handbook Pub. Tetra Pak Processing Systems AB, S-221 86 Lund, Sweden.

Cheese Primer by Steven Jenkins, Workman Publishing, New York, 1996.
